

## CLAIMS:

1. A method for placing and routing a design on an integrated circuit, said design having a plurality of objects, said method comprising:
  - (a) performing incremental placement on a routed design;
  - (b) generating a new routed design using incremental routing based on results of said incremental placement;
  - (c) storing said new routed design if its quality is superior to that of said routed design; andrepeating said (a), (b), and (c) steps until a predetermined criterion is met.
2. The method of claim 1 further comprising a step of performing timing analysis prior to step (a) to obtain timing information
3. The method of claim 2 wherein said incremental placement is based on said timing information.
4. The method of claim 2 wherein said incremental routing is based on said timing information.
5. The method of claim 2 further comprising a step of selecting a set of connections that need to be improved, and said incremental placement operates only on said set of connections.
6. The method of claim 5 wherein said set of connections is selected based on deviation of said timing information from a predetermined constraint.
7. The method of claim 1 wherein said quality is measured based on timing performance of said new routed design.

8. The method of claim 1 wherein said incremental placement is based on routing congestion.

9. The method of claim 1 wherein said incremental placement is based on unrouted pins in said routed design.

10. The method of claim 1 further comprising a step of selecting a set of connections that need to be improved, and said incremental placement operates only on said set of connections.

11. The method of claim 1 wherein said incremental placement uses externally supplied parameters to guide its operations.

12. The method of claim 11 wherein one of said parameters is associated with distances said objects can move.

13. The method of claim 12 wherein said distances vary with number of times said incremental placement has been performed.

14. The method of claim 11 wherein one of said parameters is associated with specifying a set of connections to consider.

15. The method of claim 11 wherein one of said parameters is associated with specifying a set of locked objects.